

An *advanced* Hitchhikers Guide to the Black Arts of Earth system modelling (‘or why you should not want know what is in a sausage’) AWI 2013

This 1-day advanced course builds on the introductory course. It will focus on the long-term controls on global carbon cycling and the use of models in interpreting the geological record. In it, you will experiment with and assess the role of deep-sea sediments in providing a long-term buffering and regulation of atmospheric $p\text{CO}_2$. Equally, you will see how deep-sea sediments ‘record’, imperfectly, properties of Earth system, taking the example of massive carbon release to the atmosphere such as characterized the Paleocene-Eocene Thermal Maximum. There will be opportunities to experiment with different continental configurations and to test ideas for how past climates and marine carbon cycle might have operated, particularly associate with global disruptions of carbon cycling and climate such as associated with the Cretaceous Ocean Anoxic Events as well as with the end Cretaceous impact. The cumulating objectives of this advanced course are to develop a fuller appreciation of the time-scales and strength of long-term (geological) feedbacks on atmospheric $p\text{CO}_2$, and how the Earth system responds to extreme perturbations, and how this is expressed in the geological record.

